

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to FIGs. 8 and 9. This sheet, which includes FIGs. 8-10, replaces the previously submitted drawing sheet with FIGs. 8-10 in the February 4, 2009, reply. In FIG. 8, angles α_1 and β_1 have been drawn with respect to the horizontal plane, H, for inclined surface 34a of the front seat 34 and inclined surface 30a of the fixed engagement member 30, respectively. In FIG. 9, angles α_2 and β_2 have been drawn with respect to the horizontal plane, H, for inclined surface 35a of the rear seat 35 and inclined surface 31a of the moveable engagement member 31, respectively.

Attachment: Replacement Sheet

REMARKS

The Office Action, dated, May 12, 2009, has been received and its contents carefully noted. From the Summary page, claims 1-4 and 6 were pending and indicated as rejected. The Information Disclosure Statement filed September 9, 2008 has been considered.

Applicants respectfully submit that claims 1 and 3-6 are currently pending pursuant to the last claim amendment. Acknowledgment is requested in the next action.

By this Response, claims 1 and 6 have been amended. No statutory new matter has been added.

Claim Rejections – 35 U.S.C. § 103(a)

I. Claims 1-4 and 6 stand rejected as being unpatentable over Tometsuka (US 2001/0052325) in view of Iwai Seiji (JP 2003-338531) in view of Kesil et al. (US 7,140,655). The rejection as to claim 2 is moot upon claim cancellation pursuant to Applicants' last response. The rejection as to claims 1, 3, 4 and 6 is respectfully traversed.

A. Claims 1 and 6, as amended, each recite,

“an angle of inclination of the inclined surface of the front seat with respect to a horizontal plane is smaller than an angle of inclination of the inclined surface of the fixed engagement member with respect to said horizontal plane,
an angle of inclination of the inclined surface of the rear seat with respect to said horizontal plane is smaller than an angle of inclination of the inclined surface of the movable engagement member with respect to said horizontal plane”.

Applicants respectfully submit the combination of Tometsuka, Seiji and Kesil does not teach or disclose all of the claimed features recited above. Therefore, amended claims 1 and 6 patentably distinguish thereover.

To ensure full understanding of Applicants' invention, reference is made to amended FIGS. 8 and 9 that illustrate inclination angles α_1 and α_2 for inclined surfaces of the front 34a and rear 35a seats with respect to a horizontal plane H. Also shown are inclination angles β_1 and β_2 for the inclined surfaces of the fixed 30a and moveable 31 engagement members with

respect to the horizontal plane H. The relationship among the inclination angles is particularly advantageous for the substrate support device to grip a substrate on its underside.

The Office Action expressly relies upon Kesil, in view of the failures of Tometsuaka and Seija, to describe the inclined surfaces of the front and rear seats as well as the inclined surfaces for fixed and movable engagement members.

As an initial matter, it is unclear from the Office Action's description of FIGs. 6-7 which reference indicators in Kesil illustrate front and rear seats. A fair characterization of Kesil is that 36a is a spool-like roller which is part of the 2nd post 36. See FIGs. 2 and 6. The spool-like roller is understood by Applicants to be a seat. Moreover, the vertical projection 37 appears to be an equivalent of the 1st post 24 and is also understood by Applicants to be a seat. See FIGs. 2 and 7. However, it is unclear which post (*i.e.*, seat) is the front seat and the rear seat.

Kesil does not describe a fixed engagement member. Specifically, Kesil's three fingers 22, 26 and 28 and their respective posts 24, 36 and 38, move radially inward for gripping the wafer. See col. 8, ll. 45-48. Therefore, Kesil does not disclose a fixed engagement member. Applicants urge that inclination angle β_1 cannot exist if the fixed engagement member is absent. Thus, Kesil fails to teach or suggest "an angle of inclination of the inclined surface of the fixed engagement member".

It is also submitted that Kesil's angles in relation to the spool-like roller 36a and vertical projection 37 are the same. Assuming the wafer W represents the horizontal plane and the vertex in FIGs. 6-7, α would be divided in half at the vertex. Thus, the upper inclined surface and lower inclined surface originating from the vertex are equal in each of FIGs. 6-7. Applicants interpret the lower inclination angle to be representative of the engagement member. The upper inclination angle is representative of the seat.

By contrast, Applicants' inclination angles α_1 and α_2 of the front and rear seats are considerably smaller than the inclination angle β_1 and β_2 ¹ which are representative of the fixed and moving engagement members. See amended FIGs. 8-9. The smaller inclination angles for α_1 and α_2 illustrate a smaller thickness. Therefore, the gap (g) between the lower surface of the substrate support device 20 and the upper surface of the substrate is small. Accordingly, the substrate support device 20 is insertable into a small gap (h) between adjacent support plates 15 very easily. Thus, the pitch of the ring-shaped support members are effectively reduced in order to increase the number of substrates to be heat-processed at one time. Kesil simply cannot achieve the throughput of Applicants' claimed invention because its inclination angles for the seats and engagement members are substantially equal. Thus, Kesil fails to suggest, "an angle of inclination of the inclined surface of the front seat with respect to a horizontal plane is smaller than an angle of inclination of the inclined surface of the fixed engagement member with respect to said horizontal plane" in addition to "an angle of inclination of the inclined surface of the rear seat with respect to said horizontal plane is smaller than an angle of inclination of the inclined surface of the movable engagement member with respect to said horizontal plane". Therefore, claims 1 and 6 are not *prima facie* obvious in view of Tometsuka, Seiji and Kesil.

To further distinguish thereover, Applicants advance the position that Kesil's device holds a wafer on the upper side of the bar/finger 22. See FIG. 2. Applicants' invention, by contrast, grips a wafer on a lower surface of the support device. See FIG. 4. The claimed relationship between the inclination angles α_1 , α_2 , β_1 and β_2 are deemed advantageous when the wafer is gripped on the underside of the support device. As such, Applicants' structural configuration with the recited inclination angles in order "*to grip a process object on an under side of an associated one of the substrate support devices*" is not taught or suggested by Kesil.

Since the combination of Tometsuka, Seiji and Kesil fails to disclose or suggest all of the above-mentioned claim features, the obvious rejection must fail. Therefore, amended

¹

Due to larger inclination angles β_1 and β_2 , the thickness of the fixed and movable engagement members are somewhat thicker. This is not problematic because the center portion of the substrate held at its peripheral portions sags under its own weight. Thus, increase in thickness of the fixed and movable engagement members is negligible.

claims 1 and 6, and dependent claims 3 and 4 patentably distinguish thereover. Accordingly, reconsideration and withdrawal are kindly solicited for this rejection.

B. Claim 5 stands rejected as being unpatentable over Tometsuka in view of Seiji in view of Kesil in view of Suzuki et al. (US 6,758,876). The rejection is respectfully traversed.

Applicants submit that Suzuki does not remedy the deficiencies of Tometsuka, Seiji and Kesil with respect to claim 1. Applicants therefore advance similar arguments on the merits for claim 5 as for claim 1 herein. Thus, this obvious rejection likewise must fail. Accordingly, Applicants solicit reconsideration and withdrawal of the rejection.


CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. 1.136(a), and any fees required therefore are hereby authorized to be charged to Deposit Account No. 02-4300, Attorney Docket No. 33082M355.

Respectfully submitted,
SMITH, GAMBRELL & RUSSELL, LLP

By: 
Michael A. Makuch, Reg. No. 32,263
1130 Connecticut Avenue, NW, Suite 1130
Washington, D.C. 20036
Telephone: (202) 263-4300
Facsimile: (202) 263-4329

Dated: August 11, 2009

SGRDC\346883.3